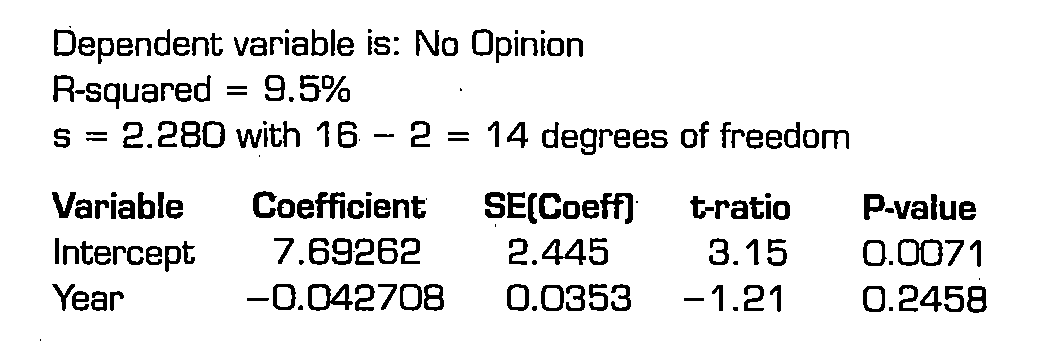
***Chapter 27: Linear Regression T-test***

**REVIEW:** Use the group AIRFARE. Refresh on how to create:

* Scatterplots, LSR line, Correlation, Residual plot

**MORE REVIEW:** Given the following regression output, what is the LSRL equation? The correlation?



**Linear Regression T-test:**

* We want to test….
* We look at a …
* LSR line (sample):
* Population model:

SAMPLE POPULATION WHAT IS IT?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**RESIDUALS (errors):**

* Independent, Normally distributed
* N(0, Se)
* Se =

**T-Test:**

**Hypotheses:**

**Conditions:**

1. SRS
2. Linear data
3. Independence
4. Normal residuals
5. Equal variance

**Mechanics:**

Test Statistic:

P-Value:

Conclusion:

**2 ways to do the mechanics of the test:**

1. With actual data
   * Use LinReg T-test on calculator
   * Example: AIRFARE data
2. With computer output

Computer output:



**Example:**

1. Does a relationship exist between High School GPA and freshman year performance in college?  A random sample of 40 freshman at a local college was taken and their HS GPA and the GPA from their first full year were recorded.

**Hypotheses:**

**Computer output: Normal Probability Plot:**

Scatterplot: Residual Plot:

Perform the test:

Confidence Interval:

FORMULA:

***Book problems: p. 673 #3 & 5, 13 & 15, 34***